

Table S1. Primers used in the present study

Gene	Primer	Sequence (5' to 3')	$T_m$	Application
	80	GAA CAR GCW AAR AAR ATG A CCA TCC TAA TAC GAC TCA CTA TAG	48	1, 4
<i>L. rubidus LWRh</i>	AP1	GG	57	1, 2, 3, 4
	LyLWRD1	GCG AAG ATT GAA CCC CAG ATG	57	3
	LyLWFD2	TGC ATT AAT GAC CAT CTC CCT CTG	58	4
<i>L. rubidus BRh1</i>	LyLWRD2	ACA ATT CGC CGT TTT CGT AT	54	4
	LyBRD2	GAA GGC TCC AGT CAT CGT CAC	59	3
	LyBFD1	AGA TAC AGG GCG GAA CTT GAG AA	59	4
<i>L. rubidus BRh2</i>	LYBRD1	GGC GAA AGC TTG GTC CTC TAT	58	4
	LyNBRD1	TGA AGA GGA AGA AGA TCG TGA AGG	55	3, 4
<i>L. rubidus UVRh</i>	LyNBFD1	GCC TTC ACG ATC TTC TTC CTC TTC	59	4
	LyUVRD1	TGC AAG CAT TTC TAC ATC TAC ATT	55	3
	LyUVFD1	CTG ATC GGA GCT TTT GGA GAC C	59	4
<i>P. icarus BRh1</i>	LyUVRD1	TGC AAG CAT TTC TAC ATC TAC ATT	55	4
	PICAB1RD1	GTC TCC AAA AGC TCC GGT CAT AGT	59	3
	PICAB1RD2	TGT GTC CGT TTT CGT TAG TGT GA	57	4
<i>P. icarus BRh2</i>	AGLAB2RD1	CCT GTA CTT GGG ATG GTT GAT G	55	3
<i>A. glandon BRh1</i>	AGLAB1RD1	TGG TGT TAA AAT TCC CTT GTC TCC	55	3
	AGLAB1RD2	CGT CTT CGT TAG CGG GAT TTA	55	4
<i>A. glandon BRh2</i>	AGLAB2RD1	CCT GTA CTT GGG ATG GTT GAT G	55	3
<i>S. behrii BRh1</i>	SATYBIRD1	ATG TTC CTG TCT CCA AAT GCT C	55	3
	SATYB1RD2	TTG GTC GTT CGA GAA AAA TAC TT	53	4
<i>S. behrii BRh2</i>	SATYB2RD1	GCG CAG ATG AAG AGG AAG AAG ATA	57	3
<i>V. cardui BRh</i>	VanBlueRD	CCA TGA GTA CAG AAA CAG GAA GAA	56	3
<i>A. mormo BRh</i>	APOBRD1	TCG CCA CAG GTG TTA AAA TAC TCC	59	3
	APOBFD1	ATC TTC TTC CTT TTT GTC TGC TCT	56	4
	APOBRD2	TCG CTC GAA AAT CCA TAG AAT AG	54	4
<i>C. philodice BlueRh</i>	COBRD1	AAC AGA TAA ACA GGA AGA AGA TGG	53	3
<i>B. anynana BlueRh</i>	BANBRD1	GCG TAM GGC GTC CAT GAG CAA ACA	63	3
<i>H. erato BlueRh</i>	HMPBRD1	ACA AAC AGG AAG AAG ATG GTG AAT	55	3
<i>H. melpomene BlueRh</i>	HMPBRD1	ACA AAC AGG AAG AAG ATG GTG AAT	55	3
<i>B. arthemis astyanax BlueRh</i>	LARASBRD1	AAG CTC CAG TCA TAG TAA CGA ACG	57	3
<i>N. antiopa BlueRh</i>	NANBRD1	CAT CGT GAC AAA GGC ATA AGG TG	56	3

Applications:

<sup>1</sup>cDNA synthesis adaptor primer<sup>2</sup>3'RACE (rapid amplification of cDNA ends)<sup>3</sup>5'RACE<sup>4</sup>Multiplex PCR

Table S2. *Ommatidial subtypes in the ventral eye out of 115 surveyed*

Gene	Both R1 and R2	Either R1 or R2	Neither
UVRh	23%	48%	29%
BRh1	21%	48%	31%
BRh2	0%*	17%	83%

\*In other sections this class of ommatidia was observed in very low numbers.

Table S3. *GenBank accession numbers of blue opsin cDNAs cloned in this study (\*) and used in the phylogenetic tree reconstruction*

Family	Subfamily	Species	Opsin	Accession number
Sphingidae	Sphinginae	<i>Manduca sexta</i>	<i>Manop3</i>	AD001674
Pieridae	Pierinae	<i>Pieris rapae</i>	<i>PrB</i>	AB208675
Pieridae	Pierinae	<i>Pieris rapae</i>	<i>PrV</i>	AB208674
Pieridae	Coliadae	<i>Colias philodice</i>	<i>BlueRh</i>	AY918899*
Papilionidae	Papilioninae	<i>Papilio xuthus</i>	<i>PxRh4</i>	AB028217
Papilionidae	Papilioninae	<i>Papilio glaucus</i>	<i>PgRh6</i>	AF077192
Nymphalidae	Danainae	<i>Danaus plexippus</i>	<i>Blue</i>	AY605544
Nymphalidae	Satyrinae	<i>Bicyclus anynana</i>	<i>Blue</i>	AY918894*
Nymphalidae	Heliconiinae	<i>Heliconius erato</i>	<i>Blue</i>	AY918906
Nymphalidae	Heliconiinae	<i>Heliconius melpomene</i>	<i>Blue</i>	AY918897*
Nymphalidae	Limenitidinae	<i>Basilarchia arthemis astyanax</i>	<i>Blue</i>	AY918902*
Nymphalidae	Nymphalinae	<i>Nymphalis antiopa</i>	<i>Blue</i>	AY918893*
Nymphalidae	Nymphalinae	<i>Vanessa cardui</i>	<i>BRh</i>	AY613987*
Riodnidae	Riodininae	<i>Apodemia mormo</i>	<i>BRh</i>	AY587906*
Lycaenidae	Polyommatae	<i>Polyommatus icarus</i>	<i>BRh1</i>	DQ402500*
Lycaenidae	Polyommatae	<i>Polyommatus icarus</i>	<i>BRh2</i>	DQ402501*
Lycaenidae	Polyommatae	<i>Agriades glandon</i>	<i>BRh1</i>	DQ402502*
Lycaenidae	Polyommatae	<i>Agriades glandon</i>	<i>BRh2</i>	DQ402503*
Lycaenidae	Theclinae	<i>Satyrium behrii</i>	<i>BRh1</i>	DQ402498*
Lycaenidae	Theclinae	<i>Satyrium behrii</i>	<i>BRh2</i>	DQ402499*
Lycaenidae	Lycaeninae	<i>Lycaena rubidus</i>	<i>BRh1</i>	AY587902*
Lycaenidae	Lycaeninae	<i>Lycaena rubidus</i>	<i>BRh2</i>	AY587903*